

Title (en)

METHOD AND SYSTEM FOR DETERMINING THE MECHANICAL RESPONSE OF A COMPONENT

Title (de)

VERFAHREN UND SYSTEM ZUR BESTIMMUNG DER MECHANISCHEN REAKTION EINES BAUTEILS

Title (fr)

PROCÉDÉ ET SYSTÈME POUR DÉTERMINER LA RÉPONSE MÉCANIQUE D'UN COMPOSANT

Publication

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Application

**EP 20157479 A 20200214**

Priority

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Abstract (en)

The present invention relates to a computer-implemented method for determining a distribution of a fatigue indicator parameter (FIP(p,t)) of a component after applying a load characteristics, comprising the steps of:- Simulating (S2) the microstructural response using a macroscale simulation applying a finite element method in consecutive time steps, wherein the microstructural response is obtained in a recurrent process of concurrently determining deformation ( $\epsilon(p,t)$ ) and stress ( $\sigma(p,t)$ ) for each integration point until macroscale simulation has converged to a balancing equilibrium;- For each iteration, each time step and each integration point, applying (S3) a trained recurrent neural network (12) based on a deformation ( $\epsilon(p,t)$ ) increment to obtain the stress ( $\sigma(p,t)$ ) and fatigue indicator parameter (FIP(p,t)), wherein the fatigue indication parameter (FIP(p,t)) is derived from an internal state of the recurrent neural network (12).

IPC 8 full level

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CPC (source: EP)

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Citation (search report)

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